

CLAIMS

1. A silicon single crystal wafer grown by the Czochralski method, which is doped with nitrogen, and has an N-region for the entire plane and an interstitial oxygen concentration of 8 ppma or less.
2. A silicon single crystal wafer grown by the Czochralski method, which is doped with nitrogen, and has an interstitial oxygen concentration of 8 ppma or less, and in which at least void type defects and dislocation clusters are eliminated from the entire plane.
3. The silicon single crystal wafer according to Claim 1 or 2, wherein the interstitial oxygen concentration is 5 ppma or less.
4. The silicon single crystal wafer according to any one of Claims 1-3, wherein the concentration of the doped nitrogen is 1×10^{14} number/cm³ or more.
5. The silicon single crystal wafer according to any one of Claims 1-4, wherein the concentration of the doped nitrogen is 5×10^{14} number/cm³ or more.
6. The silicon single crystal wafer according to

any one of Claims 1-5, wherein one main surface of the silicon single crystal wafer is subjected to an EG treatment.

7. An SOI wafer, wherein a silicon single crystal wafer according to any one of Claims 1-6 is used as an SOI layer.

8. A method for producing a silicon single crystal wafer, wherein the wafer is produced from a single crystal pulled under such conditions that the crystal should have an N-region for the entire plane and interstitial oxygen concentration should become 8 ppma or less when the crystal is grown by the Czochralski method with nitrogen doping.

9. The method for producing a silicon single crystal wafer according to Claim 8, wherein the wafer is produced from a single crystal grown with a concentration of doped nitrogen of 1×10^{14} number/cm³ or more and an F/G value (F: pulling rate, G: crystal solid-liquid interface temperature gradient) in a range of 0.14-0.22 mm²/K·min at any point of crystal plane as such a condition that the entire plane of the crystal should become an N-region.

10. The method for producing a silicon single

crystal wafer according to Claim 8, wherein the wafer is produced from a single crystal grown with a concentration of doped nitrogen of 5×10^{14} number/cm³ or more and an F/G value in a range of 0.12-0.24 mm²/K•min at any point of crystal plane as such a condition that the entire plane of the crystal should become an N-region.

11. A method for producing a silicon single crystal wafer, wherein a silicon single crystal wafer produced by a production method according to any one of Claims 8-10 is subjected to a heat treatment.

12. The method for producing a silicon single crystal wafer according to Claim 11, wherein the heat treatment is performed by using a rapid thermal annealer.